

ABSTRACT

Methods and apparatus for improving the efficiency and effectiveness of *in situ* reduction of a Fischer-Tropsch catalyst slurry. The preferred embodiments of the present invention are characterized by a system that utilizes a co-feed of carbon monoxide along with the reducing gas into a reduction vessel maintained at an elevated temperature. As the metal oxide reduces to the active Fischer-Tropsch metal, the carbon monoxide acts as a poison to hydrogenolysis and reduces the loss of liquid from the slurry and the production of methane. The carbon monoxide is generally in parts-per-million quantities and will achieve the desired results in quantities less than 5,000 ppm, preferably less than 2,000 ppm.